

# PATENT SPECIFICATION

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 (72) Inventor CYRIL JAMES ALFRED WEBB



## (54) A STRUCTURAL ASSEMBLY OF PANEL MEMBERS, SUCH AS FLOORING PLANKS

(71) We, ALCOA MANUFACTURING (G.B.) LIMITED, a British Company, of P.O. Box 68, Swansea, Glamorgan, SA1 1XH, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to interengageable structural members, particularly, but not exclusively, for use as flooring planks, e.g. for passenger vehicles.

It is desirable that flooring for passenger vehicles should not creak, and should be watertight so that moisture cannot penetrate the passenger compartment. For these reasons, it is desirable to provide a seal between adjacent flooring planks.

According to the invention there is provided a structural assembly comprising two panel members provided with complementarily interlocking formations along mutually adjacent side edges which formations are mutually engageable for interconnecting the members, said formations comprising a recess on one member to hold an elongate sealing member, a projection on the other member slidable into said recess and co-operating parts on said members so arranged that when a sealing element is positioned in the recess and said formations are moved into interlocking engagement the members are urged sideways towards one another and the sealing member is compressed by said

the members towards one another so that said first projection slides into said recess and compresses the sealing element to produce a seal, said flange, said recess and said first and second projections all extending along substantially the whole length of the members.

Preferably, each member has a continuous web which constitutes a bounding surface of the member and which, when the member is a floor plank, provides the actual floor. The portion of the web between the flange and the longitudinal edge of the web constitutes a tongue between which and the flange is said recess. Advantageously, the web is supported by at least one leg which depends from the undersurface of the web and preferably terminates in a foot. The feet can then rest on a supporting structure, e.g. the chassis of the vehicle. Advantageously, the flange on said one member also constitutes a support for the web.

Advantageously, the tongue is of a height slightly less than that of the adjacent edge portion of the web of said other member. This arrangement has the advantage that as the members are tightened down onto their supporting surfaces the tongue is slightly stressed by being brought down against the top of said first projection of the second member, which ensures that the web portions are coplanar and thus that the floor produced is flat. Another result is that the sealing element is better compressed

### ERRATUM

SPECIFICATION NO 1496489

Page 2, line 108, *before* towards *delete* tare urged sidewalls *insert* are urged sideways

THE PATENT OFFICE  
23 May 1978

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It is desirable that flooring for passenger vehicles should not creak, and should be watertight so that moisture cannot penetrate the passenger compartment. For these reasons, it is desirable to provide a seal between adjacent flooring planks.

According to the invention there is provided a structural assembly comprising two panel members provided with complementarily interlocking formations along mutually adjacent side edges which formations are mutually engageable for interconnecting the members, said formations comprising a recess on one member to hold an elongate sealing member, a projection on the other member slidable into said recess and co-operating parts on said members so arranged that when a sealing element is positioned in the recess and said formations are moved into interlocking engagement the members are urged sideways towards one another and the sealing member is compressed by said projection to produce a seal between the members.

Preferably, one of the members has a flange spaced from its side edge, which flange defines a recess for the reception of the sealing element, and the other member has a first projection which is slidable into said recess to compress said sealing element and a second projection positioned and shaped such that when the members are moved in use into an interengaged position, said second projection bears against the flange on said one member so as to move

the members towards one another so that said first projection slides into said recess and compresses the sealing element to produce a seal, said flange, said recess and said first and second projections all extending along substantially the whole length of the members.

Preferably, each member has a continuous web which constitutes a bounding surface of the member and which, when the member is a floor plank, provides the actual floor. The portion of the web between the flange and the longitudinal edge of the web constitutes a tongue between which and the flange is said recess. Advantageously, the web is supported by at least one leg which depends from the undersurface of the web and preferably terminates in a foot. The feet can then rest on a supporting structure, e.g. the chassis of the vehicle. Advantageously, the flange on said one member also constitutes a support for the web.

Advantageously, the tongue is of a height slightly less than that of the adjacent edge portion of the web of said other member. This arrangement has the advantage that as the members are tightened down onto their supporting surfaces the tongue is slightly stressed by being brought down against the top of said first projection of the second member, which ensures that the web portions are coplanar and thus that the floor produced is flat. Another result is that the sealing element is better compressed.

Advantageously, the members are of identical cross-section, and are extrusions, e.g. of aluminium or aluminium alloy.

The sealing element may, for example, be of neoprene or other compressible resilient material.

In order to enable the invention to be more readily understood, reference will now be made to the accompanying drawings, which illustrate diagrammatically and by way of example, an embodiment thereof, and in which:—

Fig. 1 is an end view of interengaged for-

SEE ERRATA SLIP ATTACHED

mations on the side edges of two identical structural members with a sealing element between them, and

Fig. 2 is an end view of one of the members in its entirety.

Referring first to Fig. 1, there are shown the adjacent sides of two identical flooring planks 1 and 2, each of which is an aluminium extrusion. The first plank 1 has a continuous upper web 3 which terminates in a tongue portion 4 adjacent the longitudinal edge of the web. A flange 5 extends from the web portion 3 at a spacing from the longitudinal edge of the web. The flange 5 has a first portion 6 which defines with the tongue 4 a recess 7 which contains a cord 8 of a resilient material, such as neoprene, a second portion 9 which constitutes a foot on which the member 1 can rest on a supporting surface (not shown), and a third portion 10 which is upwardly inclined away from the second portion 9. The first portion 6 and the second portion 9 are connected by means of a generally Z-shaped portion (unreferenced) of the flange 5, but it will be appreciated that a Z-shape is not critical and that the connection portions can be of another shape.

The second portion 2 has a continuous web 11 which has a projection 12 extending from adjacent its longitudinal edge. The projection 12 is slidable into the recess 7, and has a first portion which runs parallel to the web 11 and a second portion which is downwardly inclined away from the first portion, and so presents an upwardly sloping surface as it moves into the recess. It will be appreciated, however, that a configuration which is exactly as illustrated is not essential. The downwardly inclined portion of the projection is formed with serrations although these are not essential. The rib 13 depends from the web 11 at a spacing from the longitudinal edge of the web and this spacing is such that when the members are positioned with their webs 3 and 11 coplanar or roughly coplanar, the rib 13 bears against the third portion 10 of the flange 5 of the member 1. It will be seen that when the members 1 and 2 are positioned side by side with their longitudinal edges adjacent and their webs 3 and 11 nearly coplanar, and the member 2 is tightened down relative to the member 1 onto a supporting surface, the rib 13 bears against the third portion 10, and the resultant cam action moves the member 2 horizontally towards the member 1, with the result that the projection 12 slides into the recess 7 and compresses the neoprene cord 8, thereby to form a water-tight seal between the members 1 and 2 and also to minimise creaking of the members 1 and 2 under load. The serrations on the projection 12 grip the cord and thereby minimise

the danger of water leakage between the cord and the projection.

Referring now to Fig. 2, there are shown, in addition to the features already described, a pair of legs 14, which terminate in feet 15 on which the member can rest on a supporting surface. As previously stated, the second portion 9 of the flange 5 also constitutes a foot by which the member can rest on a supporting surface. The height of the leg 14 and foot 15 adjacent the projection 12 is very slightly greater than that of the leg 14 and foot 15 adjacent the flange 5, and that of the flange 5 itself, the latter two heights being the same. Consequently, when the members are tightened down on to the supporting surface, the tongue 4 and the adjacent portion of the web 3 are pre-stressed so that the tongue 4 bears against the top of the projection 12, thereby compressing further the gasket 8 and ensuring a flush joint between the webs of the two members.

It will be appreciated that since the members are extrusions, the various features shown in end-view extend for the whole length of the members. The cord 8 also extends for the whole length of the members.

#### WHAT WE CLAIM IS:—

1. A structural assembly comprising two panel members provided with complementary interlocking formations along mutually adjacent side edges which formations are mutually engageable for interconnecting the members, said formations comprising a recess on one member to hold an elongate sealing member, a projection on the other member slidable into said recess and co-operating parts on said members so arranged that when a sealing element is positioned in the recess and said formations are moved into interlocking engagement the members are urged sideways towards one another and the sealing member is compressed by said projection to produce a seal between the members.

2. A structural assembly according to Claim 1, wherein one of said members has a flange spaced from its said side edge, which flange defines a recess for the reception of the elongate sealing element, and the other of said members has a first projection which is slidable into said recess to compress said sealing element and a second projection positioned and shaped such that when the members are moved in use into an interengaged position, said second projection bears against the flange on said one member so as to move the members towards one another so that said first projection slides into said recess and compresses the sealing element to produce a seal, said flange, said recess and said first and second projections all extending along substantially the whole length of the members.

3. A structural assembly according to Claim 1 or Claim 2, wherein each member has a continuous web which constitutes a bounding surface of the member and which, when two members are interengaged, is coplanar with the corresponding surface of the other member.
4. A structural assembly according to Claim 3, wherein a portion of the web between the flange and the side edge of the continuous web constitutes a tongue between which and the flange is said recess.
5. A structural assembly according to Claim 4 or Claim 3 wherein the continuous web is supported by at least one leg which depends from the undersurface thereof.
6. A structural assembly according to Claim 5, wherein the leg terminates in a foot.
7. A structural assembly according to Claim 5 or Claim 6, wherein the flange on said one member also constitutes a support for the continuous web.
8. A structural assembly according to Claim 4, wherein the tongue is of a height slightly less than that of the adjacent edge portion of the web of said other member.
9. A structural assembly according to any preceding claim, wherein the members are of identical cross-section.
10. A structural assembly substantially as hereinbefore described, with reference to, and as illustrated in, the accompanying drawings.
11. A structural member, for an assembly according to claim 9, substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

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FIG. 1.

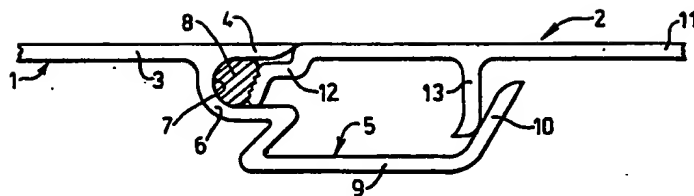


FIG. 2.

